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Анотація. У представленій роботі показано результати дослідження споживчих очікувань щодо властивостей продуктів для нутрітивної підтримки людей з опіковими травмами та прогнозування попиту на цю продукцію серед цільового сегменту споживачів. Результати аналізів та досліджень можуть бути покладені в основу формування раціонів для нутрітивної підтримки людей з опіковими травмами.

Ключові слова: продукти нутрітивної підтримки, ентеральне харчування, маркетингові дослідження.

Аннотация. В предтавленной работе приведены результаты исследования потребительских ожиданий относительно свойств продуктов для нутритивной поддержки людей с ожоговыми травмами и прогнозирования спроса на эту продукцию среди целевого сегмента потребителей. Результаты анализов и исследований могут быть положены в основу формирования рационов для нутритивной поддержки людей с ожоговыми травмами.

Ключевые слова: продукты нутритивной поддержки, энтеральное питание, маркетинговые исследования.

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CONSUMER BENEFITS OF NUTRITIONAL SUPPORT PRODUCTS FOR PEOPLE WITH BURN INJURIES

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Introduction

Burn injuries of people are among the most common injuries that occur in the workplace and at home. The severity and duration of burns are accompanied by a marked hypercatabolism and hypermetabolism that is characterized by an increase in demands of energy and plastic material. Therefore, nutritional support is essential for the treatment of patients at the beginning of the disease and for a long period of rehabilitation [1].

As the experience of domestic and foreign scientists shows, the removal of food insufficiency significantly improves the results of treatment of various categories of patients, reduces the frequency and severity of postoperative complications (from 46 % to 17 %) and mortality (11,7 % to 6 %), significantly reduces the time of hospital stay and rehabilitation period, increases the quality of life of patients with chronic diseases, reduces to 3 times the cost of the treatment and diagnostic process and 15 – 30 % of the consumption of expensive drugs [2].

Statement of the problem

One of the problems in the food market of Ukraine is the lack of nutritional support products for people with burn injuries of domestic production and the high price of foreign compounds. Considering the fact that the products of nutrition support are characterized by a wide and varied offer in the world market, the lack of domestic products for people with high hypermetabolism in Ukraine acquires an extra actuality and need researching and developing [3].

Literature review

The development and production of products for nutrition support are engaged in many countries (USA, Belgium, Germany, Japan, Sweden, China, France, India, Russia and others). The market offers a range of specialized products that are designed for nutrition support in the early postoperative period, as well as stationary and plastically periods of rehabilitation [4,5].

An important contribution to the development of products for nutritional support have made domestic and foreign scholars: O.O.Pokrovskyi, M.S.Marshak, I.Ye.Khoroshylov, O.M.Pochepen, V.A.Tutelyan, O.F. Fazullina, A.V.Belyaev, D.Cuthbertson, C.Ortega, M.H.DeLegge, J.E. Gadek, D.Royall, G.R.Greenberg et al.

Identification of consumer preferences for nutrition support products for people with burn injuries

The aim of the article is a survey of consumer expectations regarding the properties of nutrition support products for people with burn injuries.

The chair of commodity research and examination of food products of Kyiv National University of Trade and Economics and the chair of commodity research and commercial activity of Chernihiv National University of Technology made a marketing research on identification of consumer preferences for nutrition support products for people with burn injuries. In the framework of the research tasks were:

– to examine the attitude of consumers towards products nutritional support;

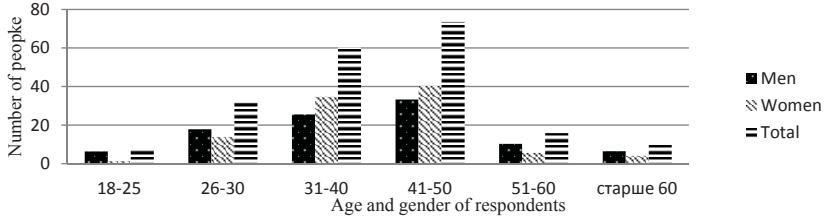
– to determine the degree of customer satisfaction with existing product range of nutritional support for people with burn injuries;

– identify the expectations and preferences of consumers in relation to nutritional support products for people with burn injuries;

During the research of demand for the products of nutrition support for people with burn injuries was made a survey of potential consumers, doctors, merchandisers. The survey instrument was a questionnaire and the list of issues related to the research problem. Analysis and synthesis of data were carried out by methods of manual and computer processing. Both descriptive and analytical methods were used for processing [6,7].

Testing results of the research

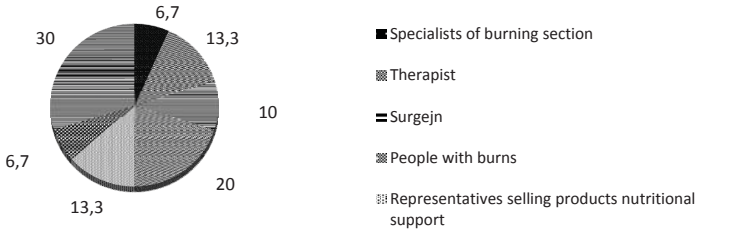
The number of respondents of surveys is 150, among them: 52 % of men and 42 % of women with different levels of income and social status at the age over 18 years. The information obtained is analyzed in the General sample and distributed on groups according to age and sex. Distribution of respondents by age and sex is shown in pic.1.



Pic. 1 Distribution of respondents by age and sex, %

The survey involved 10 specialists of burning section of thermal trauma centre of Chernihiv regional hospital, 20 therapeutists, 10 surgeons of Regional and city hospitals of Chernihiv, 30 people with burn injuries, 20 representatives selling products nutritional support, 10 pharmacists and 45 commodity-scientists and merchandisers practitioners.

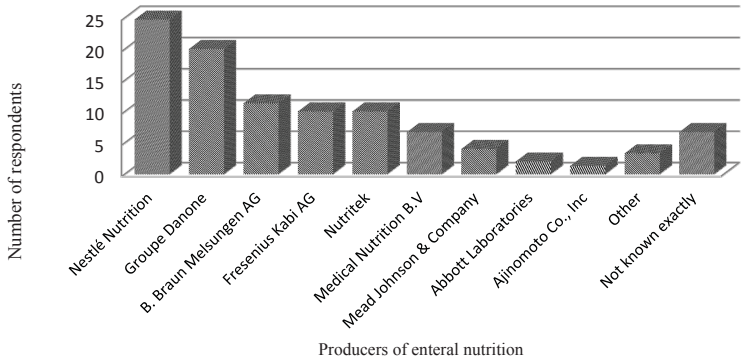
In the study was used a available sample of respondents for the period from September 2013 to May 2014 in the Chernihiv city. The survey was held in the Chernihiv Regional hospital, pharmacies, Kyiv National University of Trade and Economics, Chernihiv National University of Technology. Segmentation of respondents is shown in pic. 2.



Pic. 2 Segmentation of respondents, %

Today in the world are produced more than 300 varieties of artificial mixtures for enteral nutrition, the most famous producers of which are: Abbott Laboratories, Inc., Abbott Nutrition, Ajinomoto Co., Inc., American HomePatient, Inc. Baxter International, Inc., B. Braun Melsungen AG, Claris Lifesciences Ltd., Groupe Danone, Nutricia North America and others [8,9].

The popularity rating among manufacturers of enteral nutrition in Ukraine (according to the survey respondents, Kyiv and Chernihiv) is presented in picture 3.

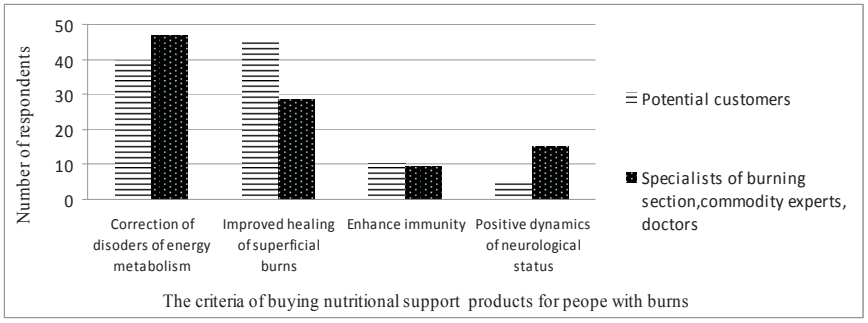


Pic. 3 The popularity rating among manufacturers of enteral nutrition, %

The survey found that the most famous brand of enteral nutrition is Nestle Nutrition, noted that 24,7 % of respondents, Groupe Danone – 20 %, B. Braun Melsungen AG – 11,3 %, Fresenius Kabi AG – 10 %, Nutritek – 10 %, Medical Nutrition B.V – 6,7 %, Mead Johnson & Company – 4 %, Abbott Laboratories – 2 %, Ajinomoto Co., Inc. – 1,3 %, others take up 3,3 %. While 6,7 % of respondents noted that they don't know the trademarks above.

Of those polled people with burn injuries, 86,6 % did not consume foods nutritional support, of which 23 % did not consider it necessary, 46,2 % did not consume them during the treatment and rehabilitation of the high prices and 19,2 % not specified the reason.

Consumer preferences for the purchase of nutrition support products of the people represented in pic. 4.



Pic. 4 Consumer preferences for the purchase of nutrition support products, %

The survey found that for 45 % of people with burn injuries the basic criterion for buying nutritional support products consider improving the healing of superficial burns, 40 % – correction of disorders of energy metabolism, 10 % – increase immunity and 5 % – a positive trend neurological status. Among the interviewed doctors, specialists, merchandisers identified the main criterion, namely, the correction of disorders of energy metabolism to 46,7 %, the improvement of healing superficial burns – 28,6 %, positive dynamics of neurological status – 15,2 %, increase immunity to 9,5 %.

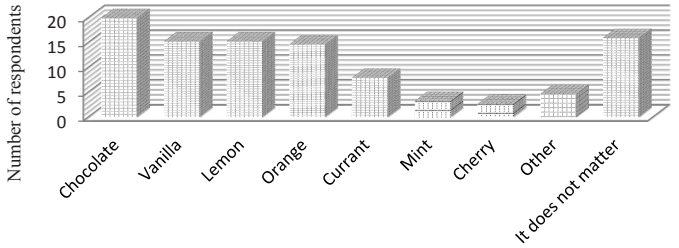
Of all respondents 86,7 % consider necessary consumption products for enteral feed during treatment and recovery periods as an additional source of nutrients.

For 91.3 % of the respondents, the price is the decisive criterion in buying nutrition support products.

According to the survey results 33,3 % of consumers prefer ready-to-drink beverages as product of nutrition support and 66,7 % – dry mixtures, which must be diluted with water or added to a normal diet.

The range of modern manufacturers of nutritional support products represents a variety of flavours: chocolate, vanilla, fruit, etc. [10,11].

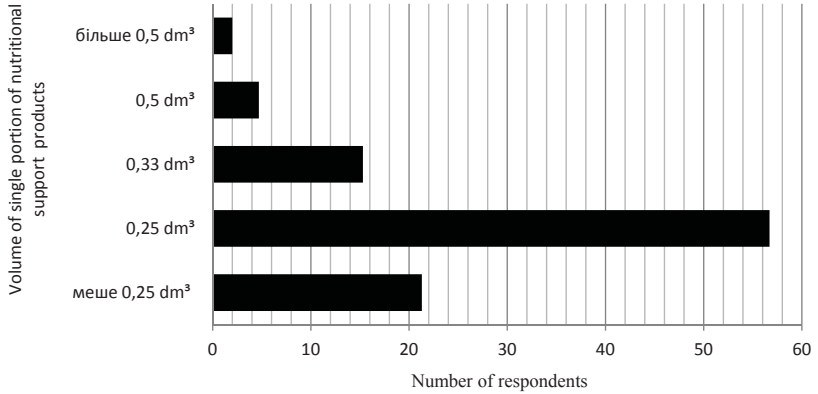
95,3 % of respondents marked out the importance of the taste of the product. The highest preference consumers gave sweet-sour taste – 54,7 %, 15,3 % – sour, 16,7 % – sweet and 13,3 % – neutral. Segmentation of respondents according to the criteria of taste presented in pic. 5.



Pic. 5 Segmentation of respondents according to the criteria of taste, %

According to the results of a study was found out that 20 % of consumers prefer chocolate taste, 15,13 % – lemon and vanilla, 14,7 % – orange, 8 % – black currant, 3,3 % – mint flavour, 2,7 % – cherry taste and 4,7 % prefer other tastes (pineapple, mango, forest berries and others) and for 16 % of respondents taste of the nutrition support products does not matter.

Segmentation of preferences of respondents in terms of a single nutritional support products portion for people with burns are shown in pic. 6.

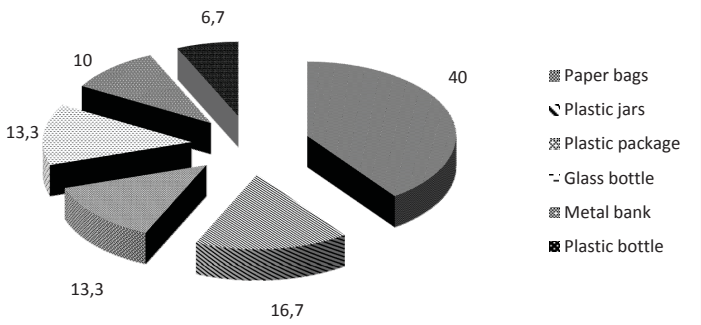


Pic. 6 Segmentation of preferences of respondents in terms of a single nutritional support products portion for people with burns, %

Founded out that consumers for a portion of the nutrition support products prefer the volume of 0,25 dm³ – 56,7 %, preference to 0,33 dm³ gave 15, 3% of respondents. Insignificant share of consumer preferences occupy a volume of less than 0,25 dm³, which has provided the advantage of 21,3 % of respondents and 0,5 dm³ and more) – 2 %.

For products of nutrition support are used various types of packaging: plastic or glass bottles, plastic or metal tins, packets [12,13].

Segmentation of respondents by type of packaging nutrition support products for people with severe burns are presented in pic. 7.



Pic. 7 – Segmentation of respondents by the type of packaging nutrition support products for people with burns, %

According to the survey the largest share, namely 40 % of respondents prefer paper packing, 16, 7% – polymer banks, 13,3 % to glass bottles, 13,3 % of polymeric packages, 10 % of the metal tins, 6,7 % – polymer bottle.

Conclusions

One of the problems in the food industry in Ukraine is the lack of food nutritional support for people with burn injuries domestic production and the high cost of foreign products. According to the results of numerous researches it is established, that one of the main criteria of recovery and rehabilitation of people with hypermetabolism is food that corresponds to the specific needs of the human body. In order to develop optimal nutritional support assortment of food was conducted market research to determine the consumer preferences.The survey found that 45 % of people with burn injuries basic criterion buying products nutritional support consider improving the healing of superficial burns, 40% – correction of disorders of energy metabolism, 10 % – increase immunity and 5 % – a positive trend neurological status. The survey found that 66,7 % of respondents prefer dry mixtures. Importance taste of the product marked 95,3 % of respondents. The biggest advantage of consumers prefer sweet-sour taste – 54,7 %. Is established that consumers are for single servings of nutritional support products preferred volume of 0.25 dm³ – 56,7 %, According to the data obtained were identified key flavor characteristics of the product, packaging preferences, consistency and a single serving. The results of studies of consumer preferences will predict demand for products and promote the development of optimal mix of recipes for nutritional support for people with burn injuries.

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Анотація. В статті наведено результати оптимізації параметрів процесу інкапсулювання пробіотиків у гелеподібний біополімер. Представлено результати досліджень використання низькометоксильованого пектину в якості захисної матриці для мікроорганізмів. Розглянуто основні параметри, що впливають на формування захисної гелевой оболонки сферичної форми а заданого розміру. Встановлено раціональний діаметр гелевих гранул, що містять пробіотичні культури.

Ключові слова: інкапсулювання, пробіотичні культури, біополімер, низькометоксильований пектин, кальцію хлорид.

Аннотация. В статье представлены результаты оптимизации параметров процесса инкапсулирования пробиотиков в гелевый биополимер. Представлены результаты исследований использования низкометоксилированного пектин в качестве защитной матрицы для микроорганизмов. Рассмотрены основные параметры, влияющие на формирования защитной гелевой оболочки сферической формы заданного размера. Установлен рациональный диаметр гелевых гранул, содержащих пробиотические культуры.

Ключевые слова: инкапсулирование, пробиотические культуры, биополимер, низкометоксилированный пектин, кальция хлорид.

УДК 616-003.94:[579.8:615.246]

ОПТИМИЗАЦИЯ ПАРАМЕТРОВ ПРОЦЕССА ИНКАПСУЛИРОВАНИЯ ПРОБИОТИЧЕСКИХ КУЛЬТУР

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Введение

Возникновение многих заболеваний человека связано с нарушение микрофлоры кишечника и с процессами пищеварения. В настоящее время в коррекции микроэкологических нарушений кишечника наиболее изученным и, в определенной степени, практически реализованным, эффективным способом экологической реабилитации является применение биологических бактериальных препаратов на основе микроорганизмов – представителей нормальной микрофлоры человека, так называемых пробиотиков. Пробиотики обладают набором определенных свойств: должны приносить пользу организму хозяина; обеспечивать безопасность при длительном применении; иметь высокий колонизирующий потенциал, стабильные характеристики в клиническом и технологическом плане; при введении в больших количествах обладать минимальной способностью к транслокации во внутреннюю среду человеческого организма; иметь высокую скорость роста.

Многочисленными исследованиями изучены разные механизмы действия пробиотиков на кишечную микрофлору человека. Наиболее известным эффектом действия пробиотиков является нормализация состояния кишечной микрофлоры, которая вызвана стимуляцией роста «полезных» микроорганизмов – бифидо- и лактобактерий и угнетением роста условно-патогенной микрофлоры [1]. Они способны продуцировать ферменты, витамины, биологически активные вещества, а также ускорять процессы переваривания пищи и усвоение питательных веществ. Другим механизмом является снижение внутрикишечного значения pH, за счет молочной кислоты и короткоцепочечных жирных кислот, синтезируемых лакто- и бифидобактериями. Чрезвычайно интересными представляются данные о том, что пробиотические культуры способны (энтерококки, лактобактерии) к выделению ряда специфических антимикробных веществ (бактериоцинов), которые ингибируют рост других микробов [2-4]. Следующим защитным эффектом пробиотиков, является их способность улучшать состояние кишечного эпителия, путем образования защитного слоя муцинов (в частности,